

# SETTING FLANGE

flange gaskets





## Carrara, gaskets with value



Carrara believes in the modern SUPPLIER meaning: active subject that actively takes part in the value chain! A value that emerges from: competence, flexibility, innovation and availability, always being oriented to the customer's necessities and the continuous interaction with them.

Thanks to the experiences made in the field of the seals systems for flange, Carrara proposes a very complete and eterogeneous Product Range of flat and metal gaskets.

For the most general applications as for the most severe one, enriched by the technical competence acquired through the constant relationships that Carrara holds with the main Partners, such as the plant builders, the shopkeepers and the Maintainers,

for the information exchange, to verify the effectiveness of the choices and the efficiency of our gaskets. The Carrara Product Range constitutes a true combination of "supplemented seal solutions" truly satisfying the most heterogeneous seals demands. With the very large PLANIFLEX® lines of asbestos free and PLANIFLON® products in PTFE, you will find in the PLANIGRAPH® line all possible options of graphite products, together with PLANIGRAPH® METALBOND and PLANIGRAPH® CROSS OVER.

At last the PLANISTEEL line offers you all commonly used metal gaskets in the industrial plants, Spiral wounds, Ring Joints and Jacketed gaskets in all kinds of steel.

**Always ask the best.  
Carrara gives you more**

# Carrara, a partner for the future

Carrara S.p.a. is one of the most important worldwide packing producer and of operating seals systems for valves operating in the western world. With quality as always, Carrara also produces flat and metal gaskets. While many other Big Players of the sector move their production activities in other areas, Carrara S.p.a. invests in Italy and in the European Community, because it considers that the customers of this mature market want and will want to buy, integrated with the product, also attributes that are and will be essential prerogatives of this market. Our Competitive Strategy is to compete in the mature market assigning value to the product through a better organizational performance.

**When a market becomes mature combined with the products that represent it, what orientation can assume a Player of this market?**



## Give us your attention: Carrara still has a lot to say!

### Certainty

In a market strongly Price Oriented, the risk of a progressive reduction of the qualitative standards is always present. The certainty to have bought the corresponding product to the requested qualifications is a customer's right and a duty of the Supplier.

### Guarantee

Guarantee means keeping control on the productive process and those where the product is involved to guarantee the conformity to certify their performance.

### Efficiency

Efficiency means to manage the production process and those correlated to the product optimizing the resources in order to create value perceivable from the customer.

### Flexibility

Flexibility is to be able to answer the customer necessity and able to provide what is required quickly at sustainable prices, it is a priority Asset!

### Support

Systematically the Carrara S.p.a.'s technical staff takes part at symposiums of the sector and is integrated with the technical offices of the End Users and planning of the OEM to consolidate and to update the technical competence necessary in order to provide support before and after sale to the customers.





## Product range

If offering good products is taken for granted, we are pleased to be

repetitive. In our Product Range you will find definite security and quality.

[www.carrara.it](http://www.carrara.it)

## PLANIGRAPH®

### Graphite gaskets and sheets

- Planigraph® LG - LGR - LGRF
- Planigraph® Metalbond
- Planigraph® Cross Over

## PLANIFLEX®

### Asbestos free gaskets and sheets

- Planiflex® PF 13
- Planiflex® PF 41 - PF 41G
- Planiflex® PF 63 - PF 63R - PF 64 - PF 65
- Planiflex® PF 81 - PF 81R

## PLANIFLON®

### PTFE gaskets and sheets

- Planiflon® B10
- Planiflon® B11
- Planiflon® E12
- Planiflon® Seal Tape

## PLANISTEEL

### Metallic gaskets

- Planisteel SW
- Planisteel MJ
- Planisteel MJS
- Planisteel GG
- Planisteel RJ



# Planigraph®

## Competitive quality

Whoever manages daily graphite products, a quick glance is enough to notice the difference between two gaskets from different production, apparently equal. The CARRARA S.p.a. products are always identifiable and certified. Just by touching it you notice the intimate adhesion between graphite and steel of the reinforced product and the extreme compactness of the product in pure graphite.

## Carrara offers performance, not only product.

Carrara S.p.a. products are recognizable by colour: green identifies LG/C, rose identifies LGR/C and blue identifies LGRF/C. Carrara S.p.a. always thinks of performance safety and to make the maintenance work easy.

Planigraph® line includes three kinds of sheets:

- **LG/C** pure graphite
- **LGR/C** pure graphite with 316L plain reinforcement
- **LGRF/C** pure graphite with 316L punctured reinforcement

All kinds are available in the format:

- 1.000 mm x 1.000 mm (40" x 40")
- 1.500 mm x 1.500 mm (60" x 60")

Thickness from 0.4 up to 5.0 mm (1/64" to 3/16")

**All Planigraph®  
sheets are treated  
with corrosion inhibitor.**





## Planigraph® LG

### The pure graphite without insertion

The gaskets in pure LG graphite are perfect for applications on flanged couplings at low pressure or used as a seal element with a metal support. The pure graphite has poor resistance to traction; therefore it is always advisable the use reduced thickness (by 0.4 to 1.0 mm) to obtain a perfect seal.

Graphite density	gr/cm <sup>3</sup>	1.0
Carbon Content	%	≥ 98
Ash Content	%	≤ 2
Material of insert	AISI	
Thickness of insert	mm	
Compressibility	%	35 - 40
Recovery	%	3 - 5
Gas Permeability DIN 3535	cm <sup>3</sup> /min	≤ 1.2
Relaxation stress DIN 52913	N/mm <sup>2</sup>	≥ 45
Temperature	°C	550
" m " factor		2.0
" y " factor	psi	900

Not usable with oxidizing stream. With oxygen and air, the maximum temperature is 400°C.

<b>Size</b>	1.000 x 1.000	40" x 40"
	1.500 x 1.500	60" x 60"
<b>Thickness</b>	0.4 ÷ 5.0	1/64" ÷ 3/16"



## Planigraph® LGR

### The pure graphite with smooth insertion

The gaskets in pure LGR graphite offer excellent performances in the applications on the Bonnet of the valves and for flanged couplings of heat exchangers.

A better resistance to the permeability can be obtained with the internal edge of the gasket. To obtain a perfect seal with this kind of gasket, the thickness use of 1.5 mm is recommended.

Graphite density	gr/cm <sup>3</sup>	1.0
Carbon Content	%	≥ 98
Ash Content	%	≤ 2
Material of insert	AISI	316L
Thickness of insert	mm	0.05
Compressibility	%	40 - 50
Recovery	%	10 - 15
Gas Permeability DIN 3535	cm <sup>3</sup> /min	≤ 0.6
Relaxation stress DIN 52913	N/mm <sup>2</sup>	≥ 45
Temperature	°C	550
" m " factor		2.0
" y " factor	psi	900

Not usable with oxidizing stream. With oxygen and air, the maximum temperature is 400°C.

<b>Size</b>	1.000 x 1.000	40" x 40"
	1.500 x 1.500	60" x 60"
<b>Thickness</b>	0.4 ÷ 5.0	1/64" ÷ 3/16"



## Planigraph® LGRF

### The pure graphite with tanged insertion

The gaskets in pure **LGRF** graphite are the most versatile and of universal application on the flanges and flanged couplings of heat exchangers. A better resistance to the permeability can be obtained with the internal edge of the gasket. To obtain a perfect seal with this kind of gasket, the thickness use of 2 mm is recommended.

Graphite density	gr/cm <sup>3</sup>	1.0
Carbon Content	%	≥ 98
Ash Content	%	≤ 2
Material of insert	AISI	316L
Thickness of insert	mm	0.10
Compressibility	%	35 - 45
Recovery	%	15 - 20
Gas Permeability DIN 3535	cm <sup>3</sup> /min	≤ 0.6
Relaxation stress DIN 52913	N/mm <sup>2</sup>	≥ 48
Temperature	°C	550
" m " factor		2.0
" y " factor	psi	1800

Not usable with oxidizing stream. With oxygen and air, the maximum temperature is 400°C.

<b>Size</b>	1.000 x 1.000	40" x 40"
	1.500 x 1.500	60" x 60"
<b>Thickness</b>	0.4 ÷ 5.0	1/64" ÷ 3/16"

- *Low Emission*
- *Fire Safe*



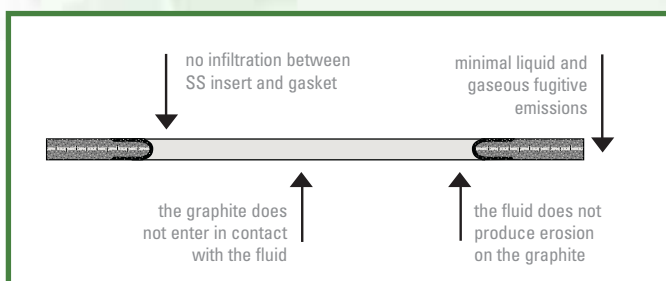
## Planigraph® Metalbond

### The protection ring

Planigraph® Metalbond is a Planigraph® gasket, with an inside reinforcement ring that increases the effectiveness of the seal, a solution that allows minimal spread of the fluid through the most stressed part of the gasket.

### Economy and long duration

The steel ring prevents the erosion of the inner edge of the seal and at the same time precludes the infiltrations between the graphite and the reinforcement sheet.



Since the graphite does not enter directly in contact with the fluid, the mechanical property of the seal remains unchanged within the time. A longer operating life, above drastic reduction of the liquid

and gaseous fugitive emissions, guarantees greater security and economical performance.

**Low emission Test / VDI 2440 / Certificate nr I -150389**

# Planigraph®

## Compatible fluid process

### ACIDS

boric acid  
bromic acid  
hydrochloric acid  
chromium sulphate acid up to 20%\*  
hydrochloric acid  
hydrofluoric acid  
nitric acid 20-65%  
nitric acid up to 20%  
phosphoric acid up to 20%  
sulphuric acid up to 70%\*  
sulphuric acid from 70 to 100%, up to 100 °C  
sulphurous acid

### ORGANIC ACIDS

acetic acid  
acrylic acid  
hexachlorophenylacetic acid  
formic acid  
maleic acid  
monochloroacetic acid  
phthalic acid  
phenylacetic acid  
stearic acid  
sulphonic acid  
tartaric acid  
trichloroacetic acid

### ALKALIS

ammonium solutions  
caustic potash  
caustic soda  
potassium hydroxide up to 400 °C  
sodium hydroxide up to 400 °C

### ALCOHOLS

ethyl alcohol  
glycolic alcohol  
isopropyl alcohol  
methyl alcohol

### ALDEHYDES

acetaldehyde  
benzaldehyde  
formaldehyde

### OTHER ORGANIC SUBSTANCES

acrylonitrile  
carbon disulphide  
dimethylsulphoxide  
epichlorohydrin  
phenol  
mercaptan  
nitrobenzene  
silicon  
siloxane  
thionyl chloride

### OTHER INORGANIC SUBSTANCES

bleach  
hydrazine  
hydrogen peroxide, 85%  
sulphur

### AMMINES

aniline  
diethylamine  
triethylamine ethanol

### KETONES

acetone  
methyl ethyl ketone  
isobutyl methyl ketone

### ESTERS

amyl ester of acetic acid  
ethylbutyl ester  
ethyl ester of acrylic acid

### ETHERS

dioxin  
diethyl ether  
diphenyl ether  
methyl ethynyl ether

### GAS/VAPOUR

air up to around 550 °C  
ammonia  
bromidric acid  
carbon dioxide up to around 600 °C  
carbon monoxide  
chlorine  
sulphur hexafluoride  
hydrochloric acid  
hydrofluoric acid  
nitrogen  
nitrogen dioxide  
nitrogen monoxide  
oxygen up to around 350 °C  
sulphidric acid  
sulphur dioxide  
steam up to 600 °C

### HYDROCARBONS

benzene  
ethylene  
iso-octane  
propane  
propylene  
styrene  
xylene

### HALOGENATED HYDROCARBONS

chlorobenzene  
chloroform  
carbon tetrachloride

### MELTED METALS

aluminium  
copper  
gold  
lead  
magnesium  
mercury  
potassium up to 350 °C  
silver  
sodium up to 350 °C  
tin  
zinc

### TECHNICAL MIXES

diathermic oils  
engine oils  
hydraulic fluid  
paint thinners  
petrol  
petroleum  
transformer oils

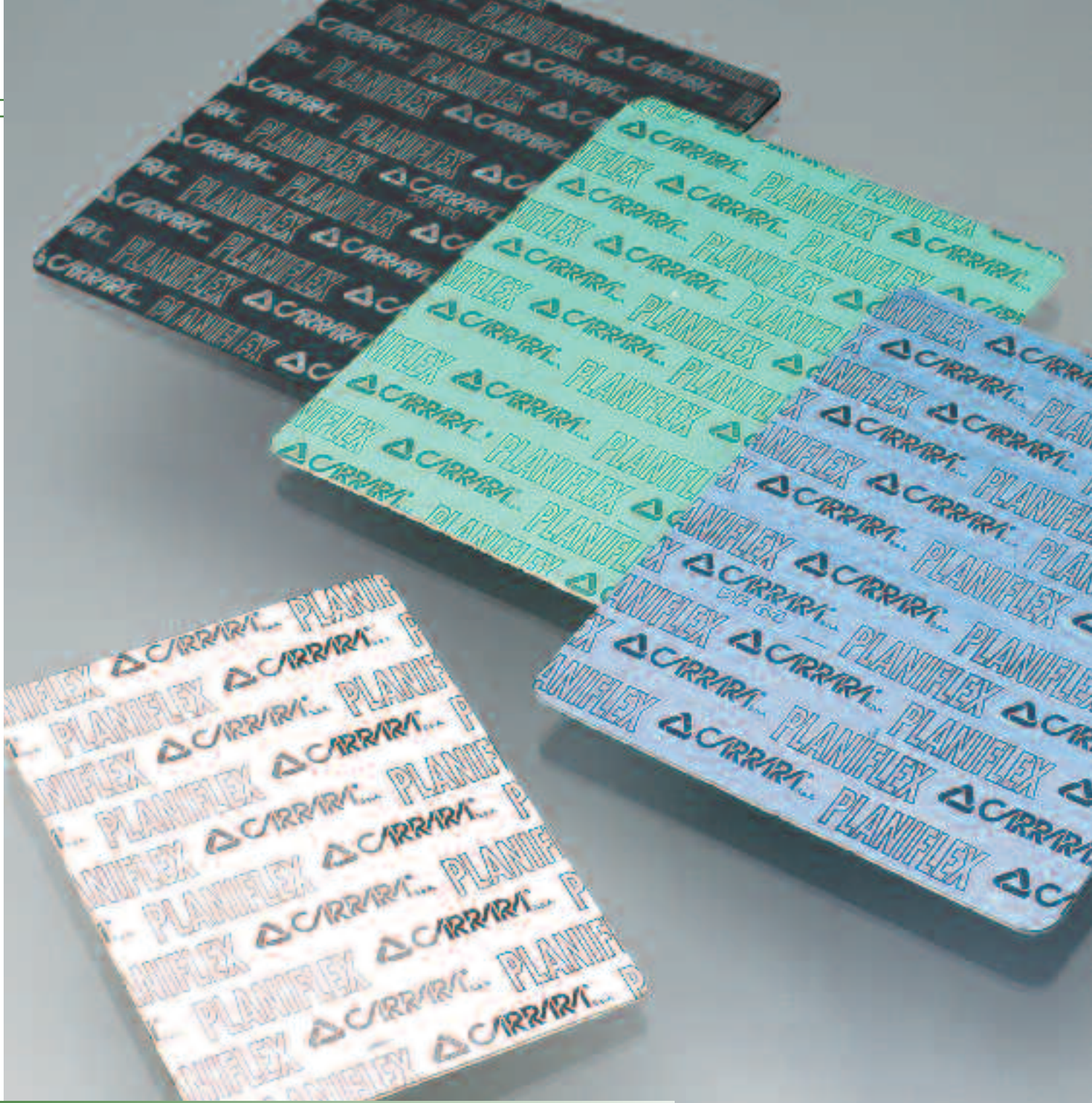
### MELTED SALTS

borate, soda, potash  
calcium chloride  
potassium hydrogen sulphate

### WATER-BASED SALINE SOLUTIONS

borates  
bromide  
carbonate  
chloride  
chromate, 20% conc.  
fluoride  
iodide  
nitrate  
nitrite  
phosphate  
sulphate

The reported data comes from experiences and test. Carrara s.p.a. declines every responsibility for damages to things or persons caused by an improper or wrong use of its products.



**Planiflex®**

A new world of gaskets

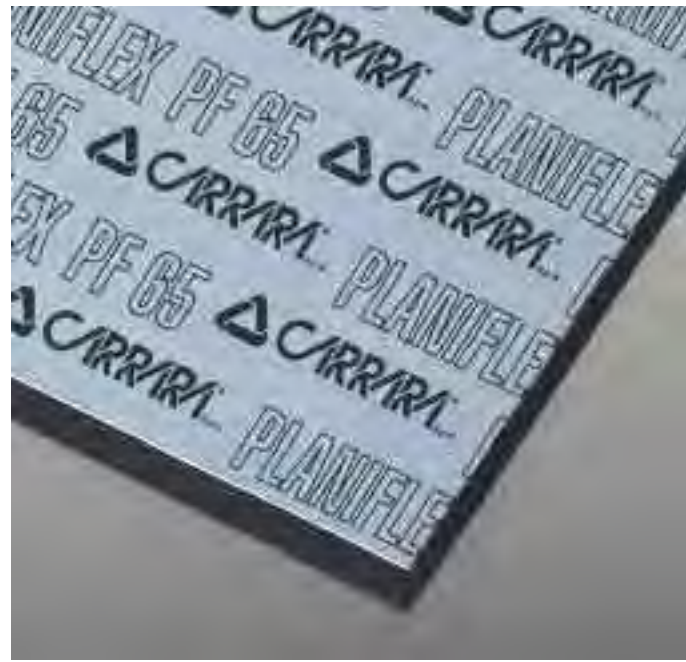
The new range of non-asbestos sheet **Planiflex®** is in a sure position to satisfy all the technical requirements that can be performed from this class of gaskets. Search between the different models and you will find what you need! Carrara guarantees you an optimal quality of the products combined with a top certification.

**Planiflex®**, another step ahead to offer you more! Part of the **Planiflex®** line, are the following models:

- PF 41, cellulose and rubber NBR, economic, reliable and ideal for the general applications, also available also in graphitized version PF 41G and reinforced with net, PF 41RG.
- PF 65, inorganic fibres and rubber NBR, the TOP of the line, prestigious and certified, ideal for the applications on steam and hydrocarbons, also available in the standard version PF 64, economy PF 63, and reinforced with net, PF 63R.
- PF 81, aramidic fibres, graphite and rubber NBR, also available in the version with net PF 81R.
- PF 13, special fibres and rubber CSM, used for applications with severe chemical substances.

You will find all the technical data sheets and other models of the **Planiflex®** line at [www.carrara.it](http://www.carrara.it).

**Planiflex®**  
the friendly gasket!



# Planiflex® PF 65

## The excellence

PF 65 is a material with an excellent parameter of relaxation stress and perfect for steam applications.

Usable with oils, gas, fuels and inorganic acids.

Certified Germanischer Lloyd, BS 7531 Grade X.

## composition

• Inorganic Fibres • NBR

<b>Compressibility</b> ASTM F 36/J	%	8
<b>Recovery</b> ASTM F 36/J	%	50
<b>Tensile strength</b> DIN 52910	N/mm <sup>2</sup> - Fb/inch	8
<b>Stress resistance</b> DIN 52913		
<b>16 h, 300 °C, 50 N/mm<sup>2</sup></b>	N/mm <sup>2</sup> - Fb/inch	30
<b>16 h, 175 °C, 50 N/mm<sup>2</sup></b>	N/mm <sup>2</sup> - Fb/inch	35
<b>GAS permeability</b> DIN 3535/6	ml/mm <sup>2</sup>	0.08

<b>Thickness increase acc.to</b> ASTM F 146		
<b>ASTM oil no. 3, 5 h, 150 °C</b>	%	8
<b>ASTM Fuel B, 5 h, 23 °C</b>	%	8
<b>HNO3 50%, 1 h, 65 °C</b>	%	
<b>H2SO4 65%, 48 h, 23 °C</b>	%	
<b>Max. operating conditions</b>		
<b>Peak temperature</b>	°C/°F	440 / 824
<b>* Continuous temperature</b>	°C/°F	350 / 662
<b>- With steam</b>	°C/°F	250 / 482
<b>* Pressure</b>	bar/psi	100 / 1450
<b>P x T</b>	bar x T °C	10000

Typical values for a thickness of 2 mm.

Tolerance: Thickness 0.10 ÷ 0.25 mm; Length ± 50.0 mm; Width ± 50.0 mm. Surface treatment: standard sheets have anti-stick coating.

\* Temperature and pressure represent maximum values and they should not be used simultaneously. \*\* Ask P x T to CARRARA technical office.

### Size

1.500 x 1.500    60" x 60"  
3.000 x 1.500    120" x 60"  
4.500 x 1.500    180" x 60"

### Thickness

0.4 ÷ 5.0    1/64" ÷ 3/16"



# Planiflex® PF 64

## The versatility

PF 64 is a material with an excellent certification level. Usable with oils, gas, fuel and inorganic acids. Certified DWGW, KTW, WRc, BAM, HTB, SVGW, Germanischer Lloyd, BS 7531 Grade Y.

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## composition

• Aramidic fibres • NBR

<b>Compressibility</b> ASTM F 36/J	%	8
<b>Recovery</b> ASTM F 36/J	%	55
<b>Tensile strength</b> DIN 52910	N/mm <sup>2</sup> - Fb/inch	11
<b>Stress resistance</b> DIN 52913		
<b>16 h, 300 °C, 50 N/mm<sup>2</sup></b>	N/mm <sup>2</sup> - Fb/inch	22
<b>16 h, 175 °C, 50 N/mm<sup>2</sup></b>	N/mm <sup>2</sup> - Fb/inch	28
<b>GAS permeability</b> DIN 3535/6	ml/mm <sup>2</sup>	0.05

<b>Thickness increase acc.to</b> ASTM F 146		
<b>ASTM oil no. 3, 5 h, 150 °C</b>	%	5
<b>ASTM Fuel B, 5 h, 23 °C</b>	%	5
<b>HNO3 50%, 1 h, 65 °C</b>	%	
<b>H2SO4 65%, 48 h, 23 °C</b>	%	
<b>Max. operating conditions</b>		
<b>Peak temperature</b>	°C/°F	400 / 732
<b>* Continuous temperature</b>	°C/°F	250 / 482
<b>- With steam</b>	°C/°F	200 / 392
<b>* Pressure</b>	bar/psi	100 / 1450
<b>P x T</b>	bar x T °C	10000

Typical values for a thickness of 2 mm.

Tolerance: Thickness 0.10 ÷ 0.25 mm; Length ± 50.0 mm; Width ± 50.0 mm. Surface treatment: standard sheets have anti-stick coating.

\* Temperature and pressure represent maximum values and they should not be used simultaneously. \*\* Ask P x T to CARRARA technical office.

<b>Size</b>	1.500 x 1.500	60" x 60"
	3.000 x 1.500	120" x 60"
	4.500 x 1.500	180" x 60"

<b>Thickness</b>	0.4 ÷ 5.0	1/64" ÷ 3/16"
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# Planiflex® PF 81

## The energy

PF 81 is an excellent material with optimal thermal and chemical properties, resistant to steam, oils, gas, fuels, alkalis and weak acids. Certified BAM.

## composition

• Aramidic and carbon fibres • NBR

<b>Compressibility</b> ASTM F 36/J	%	7
<b>Recovery</b> ASTM F 36/J	%	50
<b>Tensile strength</b> DIN 52910	N/mm <sup>2</sup> - Fb/inch	9
<b>Stress resistance</b> DIN 52913		
<b>16 h, 300 °C, 50 N/mm<sup>2</sup></b>	N/mm <sup>2</sup> - Fb/inch	25
<b>16 h, 175 °C, 50 N/mm<sup>2</sup></b>	N/mm <sup>2</sup> - Fb/inch	30
<b>GAS permeability</b> DIN 3535/6	ml/mm <sup>2</sup>	0.08

<b>Thickness increase acc.to</b> ASTM F 146		
<b>ASTM oil no. 3, 5 h, 150 °C</b>	%	5
<b>ASTM Fuel B, 5 h, 23 °C</b>	%	8
<b>HNO3 50%, 1 h, 65 °C</b>	%	
<b>H2SO4 65%, 48 h, 23 °C</b>	%	
<b>Max. operating conditions</b>		
<b>Peak temperature</b>	°C/°F	400 / 732
<b>* Continuous temperature</b>	°C/°F	280 / 536
<b>- With steam</b>	°C/°F	250 / 482
<b>* Pressure</b>	bar/psi	100 / 1450
<b>P x T</b>	bar x T °C	10000

Typical values for a thickness of 2 mm.

Tolerance: Thickness 0.10 ÷ 0.25 mm; Length ± 50.0 mm; Width ± 50.0 mm. Surface treatment: standard sheets have anti-stick coating.

\* Temperature and pressure represent maximum values and they should not be used simultaneously. \*\* Ask P x T to CARRARA technical office.

### Size

1.500 x 1.500    60" x 60"  
 3.000 x 1.500    120" x 60"  
 4.500 x 1.500    180" x 60"

### Thickness

0.4 ÷ 5.0    1/64" ÷ 3/16"



# Planiflex® PF 13

## The aggressiveness

PF 13 is a material with an excellent chemical resistance and usable with different substances, with very aggressive alkalis and acids. Certified BAM.

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## composition

• Aramidic fibres • CSM

<b>Compressibility</b> ASTM F 36/J	%	8
<b>Recovery</b> ASTM F 36/J	%	45
<b>Tensile strength</b> DIN 52910	N/mm <sup>2</sup> - Fb/inch	10
<b>Stress resistance</b> DIN 52913		
<b>16 h, 300 °C, 50 N/mm<sup>2</sup></b>	N/mm <sup>2</sup> - Fb/inch	
<b>16 h, 175 °C, 50 N/mm<sup>2</sup></b>	N/mm <sup>2</sup> - Fb/inch	25
<b>GAS permeability</b> DIN 3535/6	ml/mm <sup>2</sup>	0.06

<b>Thickness increase acc.to</b> ASTM F 146		
<b>ASTM oil no. 3, 5 h, 150 °C</b>	%	
<b>ASTM Fuel B, 5 h, 23 °C</b>	%	
<b>HNO3 50%, 1 h, 65 °C</b>	%	10
<b>H2SO4 65%, 48 h, 23 °C</b>	%	8
<b>Max. operating conditions</b>		
<b>Peak temperature</b>	°C/°F	200 / 392
<b>* Continuous temperature</b>	°C/°F	150 / 300
<b>- With steam</b>	°C/°F	
<b>* Pressure</b>	bar/psi	60 / 870
<b>P x T</b>	bar x T °C	5000

Typical values for a thickness of 2 mm.

Tolerance: Thickness 0.10 ÷ 0.25 mm; Length ± 50.0 mm; Width ± 50.0 mm. Surface treatment: standard sheets have anti-stick coating.

\* Temperature and pressure represent maximum values and they should not be used simultaneously. \*\* Ask P x T to CARRARA technical office.

### Size

1.500 x 1.500    60" x 60"  
3.000 x 1.500    120" x 60"  
4.500 x 1.500    180" x 60"

### Thickness

0.4 ÷ 5.0    1/64" ÷ 3/16"



# Planiflex® PF 41

## The economy

PF 41 is the common material for general applications.  
Economic, secure, tested.  
Certified Germanischer Lloyd.

## composition

• Organic fibres • NBR

<b>Compressibility</b> ASTM F 36/J	%	8
<b>Recovery</b> ASTM F 36/J	%	50
<b>Tensile strength</b> DIN 52910	N/mm <sup>2</sup> - Fb/inch	7
<b>Stress resistance</b> DIN 52913		
<b>16 h, 300 °C, 50 N/mm<sup>2</sup></b>	N/mm <sup>2</sup> - Fb/inch	
<b>16 h, 175 °C, 50 N/mm<sup>2</sup></b>	N/mm <sup>2</sup> - Fb/inch	20
<b>GAS permeability</b> DIN 3535/6	ml/mm <sup>2</sup>	0.08

<b>Thickness increase acc.to</b> ASTM F 146		
<b>ASTM oil no. 3, 5 h, 150 °C</b>	%	10
<b>ASTM Fuel B, 5 h, 23 °C</b>	%	10
<b>HNO3 50%, 1 h, 65 °C</b>	%	
<b>H2SO4 65%, 48 h, 23 °C</b>	%	
<b>Max. operating conditions</b>		
<b>Peak temperature</b>	°C/°F	180 / 360
<b>* Continuous temperature</b>	°C/°F	140 / 284
<b>- With steam</b>	°C/°F	120 / 248
<b>* Pressure</b>	bar/psi	40 / 600
<b>P x T</b>	bar x T °C	5000

Typical values for a thickness of 2 mm.

Tolerance: Thickness 0.10 ÷ 0.25 mm; Length ± 50.0 mm; Width ± 50.0 mm. Surface treatment: standard sheets have anti-stick coating.

\* Temperature and pressure represent maximum values and they should not be used simultaneously. \*\* Ask P x T to CARRARA technical office.

### Size

1.500 x 1.500 60" x 60"  
3.000 x 1.500 120" x 60"  
4.500 x 1.500 180" x 60"

### Thickness

0.4 ÷ 5.0 1/64" ÷ 3/16"

# Planiflex®

## Chemical Compatibility

Process fluids	PF 65	PF 64	PF 81	PF 13	PF63 PF 63R	PF41 PF 41G	PF 81R
Acetamide							
Acetic acid 10%							
Acetic acid 100%							
Acetic ester							
Acetone							
Acetylene							
Adipic acid							
Air							
Alum							
Aluminium acetate							
Aluminium chlorate							
Aluminium chloride							
Ammonia							
Ammonium bicarbonate							
Ammonium chloride							
Ammonium hydroxide							
Amyl acetate							
Aniline							
Asphalt							
Barium chloride							
Benzene							
Benoic acid							
Boric acid							
Borax							
Butane							
Butyl alcohol							
Butyric acid							
Calcium chloride							
Calcium hydroxide							
Carbon disulphide							
Carbon dioxide							
Chloroform							
Chloryne, dry							
Chloryne, wet							
Chromic acid							
Citric acid							
Copper acetate							
Creosote							
Cresol							
Cyclohexanol							
Cyclohexanone							
Decaline							
Dibenzyl ether							
Dimethyl formamide							
Dowtherm							
Ethane							
Ethyl acetate							
Ethyl alcohol							
Ethyl chloride							
Ethylene							
Ethylene glycol							
Formic acid 10%							
Formic acid 85%							
Formaldehyde							
Freon 12							
Freon 22							
Fuel oil							
Gasoline							
Glycerine							
Heptane							
Hydraulic oil (mineral)							
Hydraulic oil (Phosphate ester type)							
Hydraulic (Glycol based)							
Hydrazine							
Hydrochloric acid 20%							
Hydrochloric acid 36%							
Hydrofluoric acid 10%							
Hydrofluoric acid 40%							

Process fluids	PF 65	PF 64	PF 81	PF 13	PF63 PF 63R	PF41 PF 41G	PF 81R
Hydrogen							
Isobutane							
Isooctane							
Isopropyl alcohol							
Kerosene							
Lead acetate							
Lead arsenate							
Magnesium sulphate							
Mallic acid							
Methane							
Methanol							
Methyl chloride							
Methylene dichloride							
Methyl ethyl ketone							
Milk							
Mineral oil type ASTM no. 1							
Naphtha							
Nitric acid 20%							
Nitric acid 40%							
Nitric acid 96%							
Nitrobenzene							
Nitrogen							
Octane							
Oleic acid							
Oleum							
Oxalic acid							
Oxygen							
Palmitic acid							
Pentane							
Perchloroethylene							
Phenol							
Phosphoric acid							
Potassium acetate							
Potassium bicarbonate							
Potassium carbonate							
Potassium chloride							
Potassium dichromate							
Potassium hydroxide							
Potassium iodide							
Potassium nitrate							
Potassium permanganate							
Propane							
Pyridine							
Salicylic acid							
Silicon oil							
Soap							
Sodium aluminate							
Sodium bicarbonate							
Sodium bisulphite							
Sodium carbonate							
Sodium chloride							
Sodium cyanide							
Sodium hydroxide							
Sodium sulphate							
Sodium sulphide							
Starch							
Steam							
Stearic acid							
Sugar							
Sulphuric acid 20%							
Sulphuric acid 96%							
Tar							
Tartaric acid							
Toluene							
Transformer oil							
Trichlorethylene							
Water							
White Spirit							
Xylene							

Recommended
  Recommendation depends on operating conditions
  Not recommended



## Planiflon®

The PTFE **Planiflon®** product line becomes rich of new models in order to better satisfy the technical requirements of the customers. Search between the different products and you will find your solution!

**Planiflon®** a step ahead in order not to remain behind!

Part of the **Planiflon®** line, are the following models:

- Planiflon® SEAL TAPE SC, the adhesive tape in expanded PTFE
- Planiflon® B 10, PTFE with special fillers
- Planiflon® B 11, modified PTFE
- Planiflon® E 12, expanded PTFE

You will find all the technical data sheets and other models of the **Planiflon®** line at [www.carrara.it](http://www.carrara.it).

## The PTFE that renews!

• *Low Emission*



## Planiflon® B10

### The elasticity

Planiflon® B10 is a PTFE with special fillers whose elasticity will astonish you. A unique product in its kind, secure and easy to cut, LONG LIFE, that guarantees great elasticity also in presence of thermal gradients and oscillating loads. Certified **BAM**.

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### composition

- Pure virgin PTFE • Loaded with complex inorganic fillers.

	Testing Method	Gauge	Value
Specific weight	ASTM D792	Gr / cm <sup>3</sup>	2.2 - 2.3
Hardness	ASTM D2240	Shore D	90 - 98
Temperature work		°C	-200 / +260
Compressibility	ASTM F36A	%	10
Recovery	ASTM F36A	%	40
Stress retention	DIN 52913	N/mm <sup>2</sup>	30
Creep deformation	ASTM F38	%	18

**Size** 1.200 x 1.200 48" x 48"  
1.500 x 1.500 60" x 60"

**Thickness** 0.80 ÷ 3.20 1/32" ÷ 1/8"

Low emission Test / VDI 2440 / Certificate nr I-109007

Setting Flange



# Planiflon® B11

## The security

**Planiflon® B11** is a modified PTFE with special fillers. A High Tech product unique in its kind that guarantees great resistance to the deformation in the long period and the elasticity also in presence of thermal gradient and oscillating loads. Certified **BAM**.

## composition

- Pure modified PTFE • Loaded with complex inorganic fillers.

	Testing Method	Gauge	Value
Specific weight	ASTM D792	Gr / cm <sup>3</sup>	2.2 - 2.3
Hardness	ASTM D2240	Shore D	100 - 110
Temperature work		°C	-200 / +260
Compressibility	ASTM F36A	%	10
Recovery	ASTM F36A	%	40
Stress retention	DIN 52913	N/mm <sup>2</sup>	30
Creep deformation	ASTM F38	%	11

<b>Size</b>	1.200 x 1.200	48" x 48"
	1.500 x 1.500	60" x 60"

<b>Thickness</b>	0.80 ÷ 3.20	1/32" ÷ 1/8"
------------------	-------------	--------------



## Planiflon® E12

### The softness

Planiflon® E12 is an expanded PTFE. An excellent product, very soft and elastic which is ideal for applications on fiberglass flange for the low torque load required.

Certified FDA - BAM.

23

### composition

- Pure expanded PTFE

	Testing Method	Gauge	Value
Specific weight	ASTM D1457	Gr / cm <sup>3</sup>	0,8
Hardness	ASTM D2240	Shore D	50 - 60
Temperature work		°C	-200 / +260
Compressibility	ASTM F36A	%	45
Recovery	ASTM F36A	%	14
Stress retention	DIN 52913	N/mm <sup>2</sup>	30
Creep deformation	ASTM F38	%	5

**Size**

1.500 x 1.500

60" x 60"

**Thickness**

1.5 ÷ 3.00

1/16" ÷ 1/8"



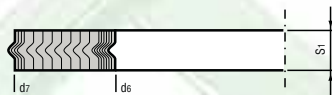
# Planisteel SW

## Elasticity and the security: Planisteel SW!

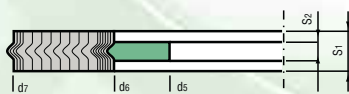
The spiral wounds product range **Planisteel SW** includes all types of gaskets for seal on the flanged coupling of any kind. The gaskets are realized in the dimensions and steels previewed from the regulations or in those request from the industrial applications, from the most common to the special ones.

The spiral wound is a gasket that must answer to the requirement of compressibility and elasticity in order to guarantee the seal. Therefore, Carrara S.P.A. produces spiral wounds on modern machinery with controlled winding tension, in order to always offer an answering product to the technical detailed lists of the regulations. Thanks to the versatile of its own plants, we are able to assure fast deliveries and also for series of limited quantities. Above that we offer consulting and technical support that only a constant effort of a strongly motivated teamwork can express.

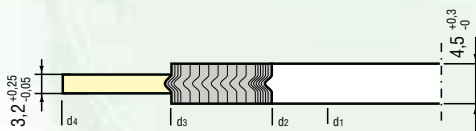
SW



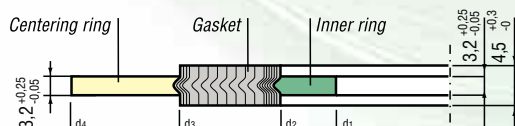
SW/I



SW/C



SWC/I



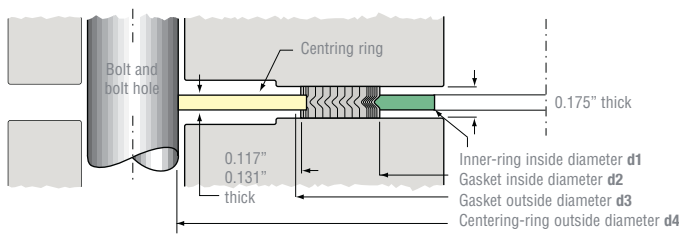
Try the difference,  
try Planisteel SW!

- *Low Emission*
- *Fire Safe*

Low emission Test / VDI 2440  
Certificates I /108988 - I /109664

Winding materials

ASTM	DIN Material No.
AISI 304	1.4301
AISI 316	1.4401
AISI 321	1.4541
AISI 316 Ti	1.4571
Monel (NiCu30Fe)	2.4360



ASME B 16,20

inch	d1					d2					d3		d4						
	150-300	400-600	900	1500	2500	150-300	400-600	900	1500	2500	150-600	900-2500	150	300	400	600	900	1500	2500
1/2	14,2	14,2	14,2	14,2	14,2	19,1	19,1	19,1	19,1	19,1	31,8	31,8	47,8	54,1		54,1		63,5	69,9
3/4	20,6	20,6	20,6	20,6	20,6	25,4	25,4	25,4	25,4	25,4	39,6	39,6	57,2	66,8		66,8		79,5	76,2
1	26,9	26,9	26,9	26,9	26,9	31,8	31,8	31,8	31,8	31,8	47,8	47,8	66,8	73,2		73,2		89,9	85,9
1 1/4	38,1	38,1	33,3	33,3	33,3	47,8	47,8	39,6	39,6	39,6	60,5	60,5	76,2	82,6		82,6		88,9	104,9
1 1/2	44,5	44,5	41,4	41,4	41,4	54,1	54,1	47,8	47,8	47,8	69,9	69,9	85,9	95,3		95,3		98,6	117,6
2	55,6	55,6	52,3	52,3	52,3	69,9	69,9	58,7	58,7	58,7	85,9	85,9	104,9	111,3		111,3		143,0	146,1
2 1/2	66,5	66,5	63,5	63,5	63,5	82,6	82,6	69,9	69,9	69,9	98,6	98,6	124,0	130,3		130,3		165,1	168,4
3	81,0	78,7	78,7	78,7	78,7	101,6	101,6	95,3	92,2	92,2	120,7	120,7	136,7	149,4		149,4	168,4	174,8	196,9
4	106,4	102,6	102,6	97,8	97,8	127,0	120,7	120,7	117,6	117,6	149,4	149,4	174,8	181,1	177,8	193,8	206,5	209,6	235,0
5	131,8	128,3	128,3	124,5	124,5	155,7	147,6	147,6	143,0	143,0	177,8	177,8	196,9	215,9	212,9	241,3	247,7	254,0	279,4
6	157,2	154,9	154,9	147,3	147,3	182,6	174,8	174,8	171,5	171,5	209,6	209,6	222,3	251,0	247,7	266,7	289,1	282,7	317,5
8	215,9	205,7	196,9	196,9	196,9	233,4	225,6	222,3	215,9	215,9	263,7	257,3	279,4	308,1	304,8	320,8	358,9	352,6	387,4
10	268,2	255,3	246,1	246,1	246,1	287,3	274,6	276,4	266,7	270,0	317,5	311,2	339,9	362,0	358,9	400,1	435,1	435,1	476,3
12	317,5	307,3	292,1	292,1	292,1	339,9	327,2	323,9	323,9	317,5	374,7	368,3	409,7	422,4	419,1	457,2	498,6	520,7	549,4
14	349,3	342,9	320,8	320,8		371,6	362,0	356,6	362,0		406,4	400,1	450,9	485,9	482,6	492,3	520,7	577,9	
16	400,1	389,9	374,7	368,3		422,4	412,8	412,8	406,4		463,6	457,2	514,4	539,8	536,7	565,2	574,8	641,4	
18	449,3	438,2	425,5	425,5		474,7	469,9	463,6	463,6		527,1	520,7	549,4	596,9	593,9	612,9	638,3	704,9	
20	423,9	489,0	482,6	476,3		525,5	520,7	520,7	514,4		577,9	571,5	606,6	654,1	647,7	682,8	698,5	755,7	
24	603,3	590,6	590,6	577,9		628,7	628,7	628,7	616,0		685,8	679,5	732,8	774,7	768,4	790,7	838,2	901,7	

ASME B 16,47 SERIES B

inch	d1					d2					d3					d4				
	150	300	400	600	900	150	300	400	600	900	150	300	400	600	900	150	300	400	600	900
26	654,1	654,1	660,4	647,7	660,4	673,1	685,8	685,8	685,8	685,8	704,9	736,6	736,6	736,6	736,6	774,7	835,2	831,9	866,9	882,7
28	704,9	704,9	711,2	698,5	711,2	723,9	736,6	736,6	736,6	736,6	755,7	787,4	787,4	787,4	787,4	831,9	898,7	892,3	914,4	946,2
30	755,7	755,7	755,7	755,7	768,4	774,7	793,8	793,8	793,8	793,8	806,5	844,6	844,6	844,6	844,6	882,7	952,5	946,2	971,6	1009,7
32	806,5	806,5	812,8	812,8	812,8	825,5	850,9	850,9	850,9	850,9	860,6	901,7	901,7	901,7	901,7	939,8	1006,6	1003,3	1022,4	1073,2
34	857,3	857,3	863,6	863,6	863,6	876,3	901,7	901,7	901,7	901,7	911,4	952,5	952,5	952,5	952,5	990,6	1057,4	1054,1	1073,2	1136,7
36	908,1	908,1	917,7	917,7	920,8	927,1	955,8	955,8	955,8	958,9	968,5	1006,6	1006,6	1006,6	1009,7	1047,8	1117,6	1117,6	1130,3	1200,2
38	958,9	952,5	952,5	952,5	1009,7	977,9	977,9	971,6	990,6	1035,1	1019,3	1016,0	1022,4	1041,4	1085,9	1111,3	1054,1	1073,2	1104,9	1200,2
40	1009,7	1003,3	1000,3	1009,7	1060,5	1028,7	1022,4	1025,7	1047,8	1098,6	1070,1	1070,1	1076,5	1098,6	1149,4	1162,1	1114,6	1127,3	1155,7	1251,0
42	1060,5	1054,1	1051,1	1066,8	1111,3	1079,5	1073,2	1076,5	1104,9	1149,4	1124,0	1120,9	1127,3	1155,7	1200,2	1219,2	1165,4	1178,1	1219,2	1301,8
44	1111,3	1104,9	1104,9	1111,3	1155,7	1130,3	1130,3	1130,3	1162,1	1206,5	1178,1	1181,1	1181,1	1212,9	1257,3	1276,4	1219,2	1231,9	1270,0	1368,6
46	1162,1	1152,7	1168,4	1162,1	1219,2	1181,1	1178,1	1193,8	1212,9	1270,0	1228,9	1228,9	1244,6	1263,7	1320,8	1327,2	1273,3	1289,1	1327,2	1435,1
48	1212,9	1209,8	1206,5	1219,2	1270,0	1231,9	1235,2	1244,6	1270,0	1320,8	1279,7	1286,0	1295,4	1320,8	1371,6	1384,3	1324,1	1346,2	1390,7	1485,9
50	1263,7	1244,6	1257,3	1270,0		1282,7	1295,4	1295,4	1320,8		1333,5	1346,2	1346,2	1371,6		1435,1	1378,0	1403,4	1447,8	
52	1314,5	1320,8	1308,1	1320,8		1333,5	1346,2	1346,2	1371,6		1384,3	1397,0	1397,0	1422,4		1492,3	1428,8	1454,2	1498,6	
54	1358,9	1352,6	1352,6	1378,0		1384,3	1403,4	1403,4	1428,8		1435,1	1454,2	1454,2	1479,6		1549,4	1492,3	1517,7	1558,8	
56	1409,7	1403,4	1403,4	1428,8		1435,1	1454,2	1454,2	1479,6		1485,9	1505,0	1505,0	1530,4		1606,6	1536,7	1568,5	1612,9	
58	1460,5	1447,8	1454,2	1473,2		1485,9	1511,3	1505,0	1536,7		1536,7	1562,1	1555,8	1587,5		1663,7	1593,9	1619,3	1663,7	
60	1511,3	1524,0	1517,7	1530,4		1536,7	1562,1	1568,5	1593,9		1587,5	1358,9	1619,3	1644,7		1714,5	1644,7	1682,8	1733,6	

EN 1514/2

DN	d1					d2					d3					d4				
	10	16	25	40	63	10	16	25	40	63	10	16	25	40	63	10	16	25	40	63
10	18	18	18	18	18	24	24	24	24	24	34	34	34	34	34	46	46	46	46	56
15	23	23	23	23	23	29	29	29	29	29	39	39	39	39	39	51	51	51	51	61
20	28	28	28	28	28	34	34	34	34	34	46	46	46	46	#	61	61	61	61	#
25	35	35	35	35	35	41	41	41	41	41	53	53	53	53	53	71	71	71	71	82
32	43	43	43	43	43	49	49	49	49	49	61	61	61	61	#	82	82	82	82	#
40	50	50	50	50	50	56	56	56	56	56	68	68	68	68	68	92	92	92	92	103
50	61	61	61	61	61	70	70	70	70	70	86	86	86	86	86	107	107	107	107	113
65	77	77	77	77	77	86	86	86	86	86	102	102	102	102	106	127	127	127	127	137
80	90	90	90	90	90	99	99	99	99	99	115	115	115	115	119	142	142	142	142	148
100	115	115	115	115	115	127	127	127	127	127	143	143	143	143	147	162	162	168	168	174
125	140	140	140	140	140	152	152	152	152	152	172	172	172	172	176	192	192	194	194	210
150	167	167	167	167	167	179	179	179	179	179	199	199	199	199	203	218	218	224	224	247
200	216	216	216	216	216	228	228	228	228	228	248	248	248	248	252	273	273	284	290	309
250	267	267	267	267	267	279	279	279	279	279	303	303	303	303	307	327	329	340	352	364
300	318	318	318	318	318	330	330	330	330	330	354	354	354	354	358	377	384	400	417	424
350	360	360	360	360	360	376	376	376	376	376	400	400	400	400	404	437	444	457	474	486
400	410	410	410	410	410	422	422	422	422	422	450	450	450	450	456	488	495	514	546	543
500	510	510	510	510	510	522	522	522	522	522	550	550	550	550	556	593	617	624	628	657
600	610	610	610	610	610	622	622	622	622	622	650	650	650	650	656	695	734	731	747	764



## Materials

Materials	ASTM	DIN material number
Low Carbon Steel	Soft iron	1.1003
Stainless steel	AISI 304	1.4301
Stainless steel	AISI 316	1.4401
Stainless steel	AISI 321	1.4541
Stainless steel	AISI 316 Ti	1.4571
Monel (NiCu30Fe)	B172, alloy 400	2.4360
Copper	Copper	2.0090
Brass	Brass Ms 63	2.0321
Aluminium	Aluminium 99.5	3.0255

PLANISTEEL gaskets are available in all metals and inserts.

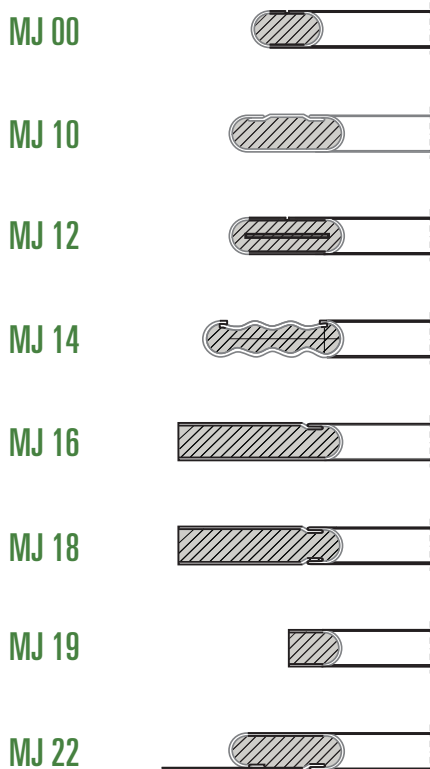
## M&J gaskets factors

Gaskets	Material	m	y (psi)
PLANISTEEL MJ	stainless steel	2,75	9.000
	4%-6%& chrome	2,75	9.000
	soft iron	2,75	7.600
	copper or brass	2,50	6.500
	monel	2,50	8.000
	aluminium	2,25	5.500
PLANISTEEL MJS	all	3,00	10.000
PLANISTEEL GG	stainless steel	3,75	11.000
	4%-6%& chrome	3,75	9.000
	soft iron	3,75	7.600
	copper or brass	3,50	6.500
	monel	3,75	7.600
	aluminium	3,25	5.500

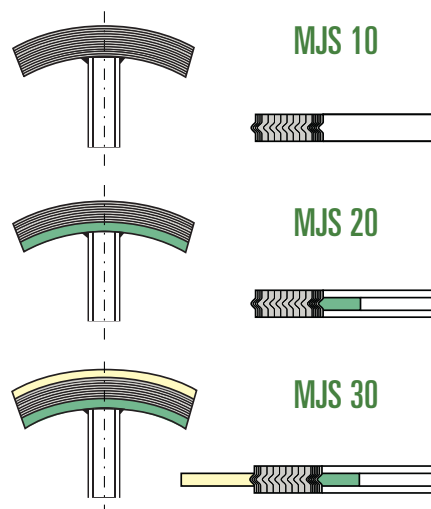
# Planisteel MJ - MJS - GG

Carrara S.P.A. realizes jacketed Planisteel gaskets in all materials and inserts for piping and heat exchanger applications, in the following versions:

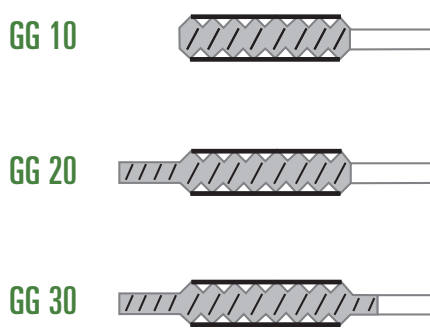
## Planisteel MJ



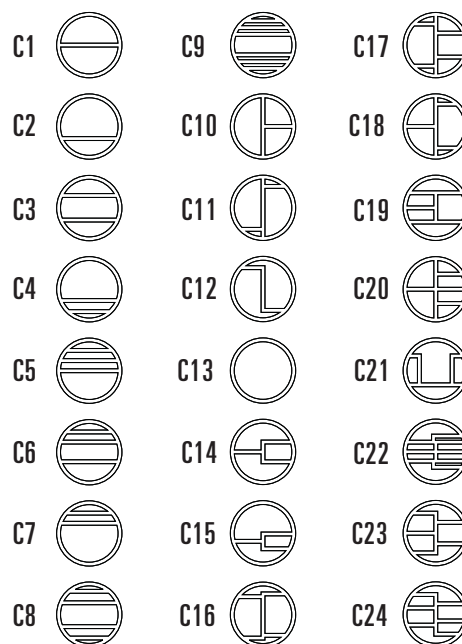
## Planisteel MJS



## Planisteel GG



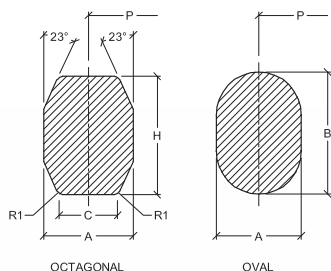
### PLANISTEEL SIZE CODES



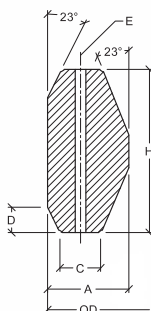


# Planisteel RJ

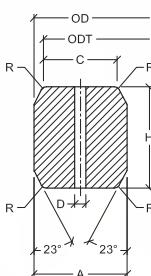
## Style R



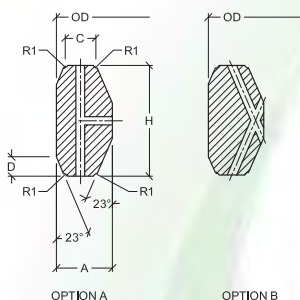
## Style RX



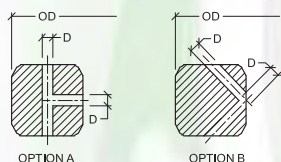
## Style BX



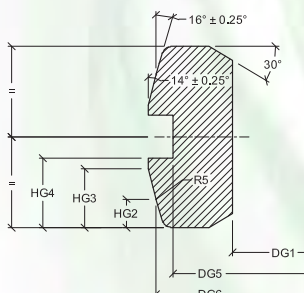
## Style SRX



## Style SBX



## Style IX



Ring Joints **Planisteel RJ**, are produced in compliance to the standards API 6A and ASME B16.20 for applications at elevated temperature and pressure. The surfaces of contact between the gasket and the flange must be shaped with particular attention in order to guarantee the maximum performance of the gasket. Thanks to our modern equipments and the particular care dedicated in the production, we succeed to guarantee superficial hardness and tolerances truly perfect.

The Ring Joints **Planisteel RJ** gaskets are available in all stainless steels and in all alloy.

## Standard materials

According to ASME B16.20

ASTM	DIN No	Max HB	Max HV	Material Code
Soft Iron	1.1003	90	56	D
Low CS	1.0038	120	78	F
4-6 Cr 1/2 Mo	1.7362	130	72	F5
AISI 410	1.4000	170	86	S 410
AISI 304	1.4301	160	83	S 304
AISI 316	1.4401	160	83	S 316
AISI 347	1.4550	160	83	S 347

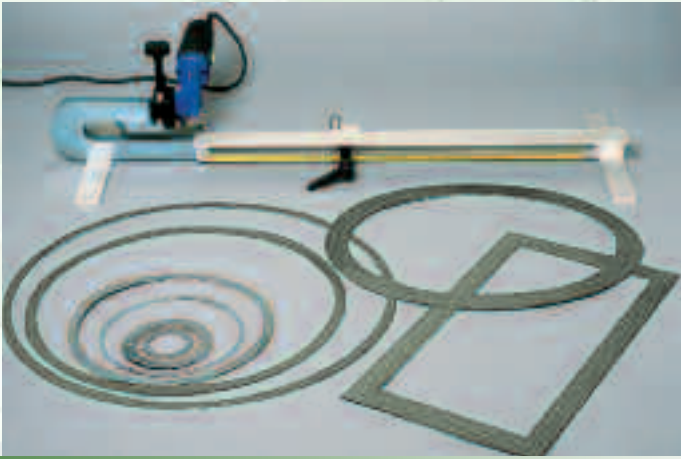
## References

RJ style	Gaskets	Flanges
R	ASME B16.20 - API 6A	ASME B16.5 - ANSI B16.47 series A
RX	ASME B16.20 - API 6A	API 6B
BX	API 6A	API 6BX

# Planisteel RJ

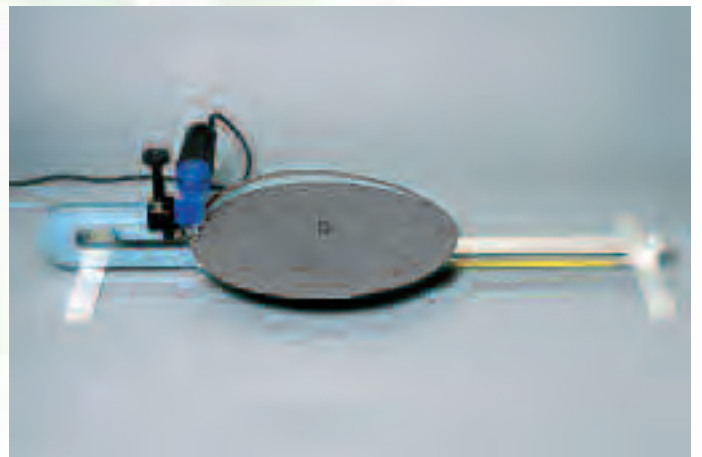
ASME B 16.20						ASME B 16.47A		API 6B			R	WEIGHT Kg	
150	300	600	900	1500	2500	3/600	900	2000	3000	5000		Oval	Octagonal
	1/2	1/2									R11	0,05	0,05
				1/2							R12	0,10	0,10
	3/4	3/4			1/2						R13	0,10	0,10
				3/4							R14	0,11	0,11
1											R15	0,12	0,12
	1	1		1	3/4			1	1	1	R16	0,12	0,11
1.1/4											R17	0,14	0,13
	1.1/4	1.1/4		1.1/4	1			1 1/4	1 1/4	1 1/4	R18	0,15	0,14
1.1/2											R19	0,16	0,15
	1.1/2	1.1/2		1.1/2				1 1/2	1 1/2	1 1/2	R20	0,17	0,15
					1.1/4						R21	0,30	0,29
2											R22	0,20	0,19
	2	2			1.1/2			2			R23	0,34	0,33
				2					2	2	R24	0,39	0,38
2.1/2											R25	0,25	0,23
	2.1/2	2.1/2			2			2 1/2			R26	0,42	0,41
				2.1/2					2 1/2	2 1/2	R27	0,45	0,43
					2.1/2						R28	0,57	0,55
3											R29	0,28	0,26
											R30	0,48	0,47
	3	3	3					3	3		R31	0,51	0,50
					3						R32	0,65	0,63
3 1/2											R33	0,32	0,30
	3 1/2	3 1/2									R34	0,54	0,52
				3						3	R35	0,56	0,55
4											R36	0,37	0,34
	4	4	4					4	4	3 1/2	R37	0,62	0,60
					4						R38	1,16	1,14
				4						4	R39	0,67	0,65
5											R40	0,42	0,39
	5	5	5					5	5		R41	0,75	0,73
					5						R42	1,91	1,88
6											R43	0,48	0,44
				5						5	R44	0,80	0,78
	6	6	6					6	6		R45	0,87	0,85
				6						6	R46	1,08	1,05
					6						R47	2,29	2,26
8											R48	0,61	0,56
	8	8	8					8	8		R49	1,11	1,09
				8						8	R50	1,99	1,95
					8						R51	3,65	3,69
10											R52	0,75	0,69
	10	10	10					10	10		R53	1,34	1,30
				10						10	R54	2,39	2,35
					10						R55	7,35	7,68
12											R56	0,93	0,87
	12	12	12			12	12	12	12		R57	1,57	1,53

ASME B 16.20						ASME B 16.47A		API 6B			R	WEIGHT Kg	
150	300	600	900	1500	2500	3/600	900	2000	3000	5000		Oval	Octagonal
				12							R58	4,98	5,03
14											R59	0,98	0,90
					12						R60	10,47	11,09
	14	14				14		14	14		R61	1,73	1,69
			14				14				R62	3,09	3,04
				14							R63	7,33	7,54
16											R64	1,12	1,03
	16	16				16		16			R65	1,94	1,89
			16				16			16	R66	3,47	3,40
				16							R67	10,07	10,53
18											R68	1,28	1,18
	18	18				18		18			R69	2,20	2,15
			18				18			18	R70	5,35	5,27
				18							R71	11,43	11,95
20		20									R72	1,38	1,27
	20		20			20		20			R73	2,99	2,92
				20			20			20	R74	5,85	5,77
											R75	15,05	15,94
24											R76	1,66	1,53
	24	24				24					R77	5,11	5,01
			24				24				R78	12,10	12,46
				24							R79	22,58	22,06
					22						R80		1,40
						22					R81		3,86
										1	R82		0,23
										1 1/2	R84		0,25
										2	R85		0,40
										2 1/2	R86		0,65
										3	R87		0,72
										4	R88		1,22
										3 1/2	R89		1,13
										5	R90		2,05
										10	R91		7,10
											R92	0,94	0,92
						26					R93		7,40
						28					R94		7,90
						30					R95		8,47
						32					R96		12,08
						34					R97		12,75
						36					R98		13,51
								8	8		R99		0,95
							26				R100		16,79
							28				R101		21,83
							30				R102		23,39
							32				R103		24,95
							34				R104		31,49
							36				R105		33,35



## Easy Cutter: your gasket maker

Easy cutter is the maintenance tool to produce FLAT GASKETS easily and quickly. Easy Cutter will become your indispensable tool to manipulate the small emergencies when the gasket are needed immediately.



Carrara S.P.A. has in its product range an extensive spectrum of graphite packings in order to satisfy every type of technical requirement.

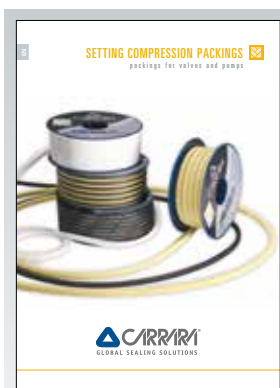
Carrara S.P.A. also exposes a vast variety of other products.

All technical data sheets of the packings and for the other Carrara S.P.A. products are in

[www.carrara.it](http://www.carrara.it)

Request the password and you will be able to access information and services of great usefulness for your job.

The reported data in the technical data sheet, are the test results executed in the Carrara S.P.A. laboratories, from tests executed by third party laboratories and from experience by the use of the products in the industrial applications. The correct product selection and its correct installation constitute decisive factor for the functionality of the product itself. Carrara S.P.A. declines every responsibility for damages to things or persons, caused by an improper use, from wrong use or from use in not optimal configuration of the products. Carrara S.P.A. reserves them selves to change the reported technical data without obligation of communication to third party.



## Braided Packings

A wide and certified product range of API 622, ISO 15848, BAM and FDA certified packing for all industrial applications.



## Valve Components

Seats for soft or metallic sealing for ball and gate valves, seat/ball kit equipped with all gaskets.



## Metallic Flange Gaskets

Planisteel is the range of Spirometallic, Kamprofile and Ring Joints gaskets in compliance with international standards or customised on demand.



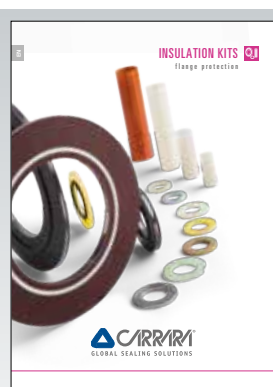
## Flat Gaskets for Flange

Planigraph, Planiflon and Planiflex gasket sheets and sealing gaskets for all applications.



## Mechanical seals

The Single Stationary Multiples Springs Cartridge and Metal Bellows Single Cartridge mechanical seals are the main products in our range.



## Insulation Kits

Flange insulation kits for cathodic protection are one of our specialities.



## FERP Envir. Division

LDAR and SMART LDAR, monitoring of Tanks and steam systems, 3D environmental consulting.